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New species of *Acrodictys* and *Repetophragma* from dead branches in China

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Abstract — Two new hyphomycetes are described and illustrated from specimens collected on dead branches in Hainan Province, China. *Acrodictys nigra* sp. nov. is characterized by terminal monoblastic conidiogenous cells bearing solitary ellipsoid or obovoid black conidia that consist of three columns of cells, with a protuberant portion at the basal cell. *Repetophragma hainanense* sp. nov. differs from other *Repetophragma* species in its smaller obovate to clavate one-septate brown to dark brown conidia.

Key words — anamorphic fungi, taxonomy

Introduction

A number of novel taxa have been recently discovered from the forest ecosystems of southern China (Dai et al. 2009; Zhang et al. 2009, 2012; Dai & Li 2010; Ma et al. 2011, 2012a,b; Ren et al. 2012). During an ongoing mycological survey in tropical forests of Hainan Province, China, two interesting hyphomycetes were collected on dead branches. Their morphological and developmental characteristics place these fungi in *Acrodictys* and *Repetophragma*. However, these fungi differ from all previously described taxa and therefore are proposed as new.

Acrodictys nigra Jian Ma & X.G. Zhang, **sp. nov.** Fig. 1

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Differs from *Acrodictys triarmata* by its larger conidia that lack lobes at the apex.

Type: China, Hainan Province: Baomeiling Nature Reserve, on dead branches of unidentified broad-leaved tree, 9 Dec. 2009, J. Ma (**Holotype**, HSAUP H5278; **isotype**, HMAS 243448).

Etymology: Latin, *nigra*, meaning black, referring to the pigmentation of the conidia.

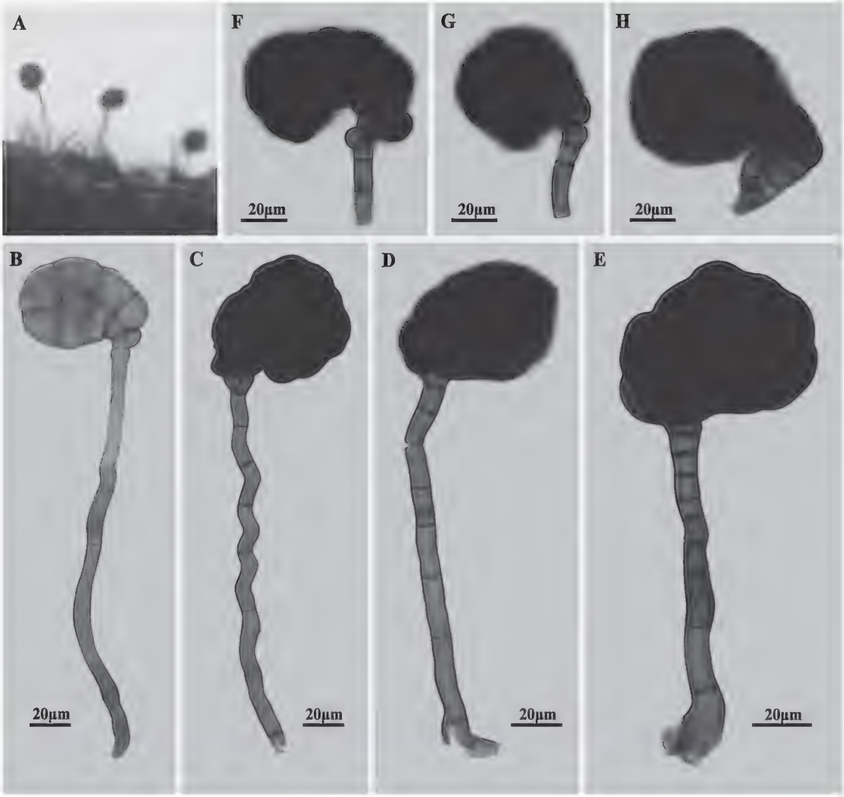

Fig. 1. *Acrodictys nigra* (holotype). A. Colonies on natural substratum. B–E. Conidiophores and conidia. F–H. Conidia.

Colonies effuse, consisting of individual brown conidiophores scattered over the substrate. Mycelium immersed and superficial, superficial hyphae pale brown, cylindrical, smooth, septate, branched. Conidiophores distinct, single, erect, straight or flexuous, cylindrical, septate, brown, smooth, 105–165 × 6.5–10.5 µm, sometimes with one percurrent extension. Conidiogenous cells monoblastic, integrated, terminal, brown, cylindrical, truncate. Conidial secession schizolytic. Conidia solitary, dry, acrogenous, consisting of three columns of cells, each column with 3–5 transverse septa, constricted at septa, ellipsoid, obovoid, or somewhat irregular in shape, smooth, black, septa obscured when mature, 48–105 × 37–56 µm, basal cell often with a protuberant portion of the conidiogenous cell attached.

Comments — Ellis (1961) established *Acrodictys* for the type species, *A. bambusicola* M.B. Ellis. He characterized the genus by dictyoseptate pigmented conidia seceding schizolytically from monoblastic integrated terminal determinate or lageniform to doliiform percurrently extending conidiogenous cells. However, through the addition of numerous species the genus has become a large heterogeneous assemblage. Baker et al. (2002a), who reviewed the taxonomic condition and status of *Acrodictys*, placed four species into a segregate genus, *Junewangia* W.A. Baker & Morgan-Jones, and suggested that the circumscription of *Acrodictys* needed further refinement. Subsequently, several new anamorph genera, including *Rhexoacrodictys* W.A. Baker & Morgan-Jones (Baker et al. 2002b), *Pseudoacrodictys* W.A. Baker & Morgan-Jones (Baker & Morgan-Jones 2003), *Ramoacrodictys* G.Z. Zhao (Zhao et al. 2009), and *Synnemacrodictys* W.A. Baker & Morgan-Jones (Gams et al. 2009), were segregated to accommodate taxa that differ from the type species of *Acrodictys* in conidial morphology, conidiogenesis, conidial secession, and the kind of conidiomata.

Keys to *Acrodictys* species have been given by Ellis (1961, 1971, 1976), Sutton (1969), and Whitton et al. (2000). Only nine *Acrodictys* species have been previously reported from China (Whitton et al. 2000, Zhao et al. 2011). The present specimen, which can be placed in the original genus, differs significantly from all previously described species.

Acrodictys triarmata Whitton et al. is the species most similar to *A. nigra* in conidial shape and pigmentation. However, *A. triarmata* differs by its smaller (24–34 × 15–30 µm) and frequently tri-lobed conidia (Whitton et al. 2000).

Repetophragma hainanense Jian Ma & X.G. Zhang, **sp. nov.** FIG. 2

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Differs from *Repetophragma quadriloculare* by its smaller, concolourous conidia with 1 septum.

TYPE: China, Hainan Province: Bairentan Nature Reserve, on dead branches of unidentified broad-leaved tree, 10 Dec. 2010, J. Ma (**Holotype**, HSAUP H5505; **isotype**, HMAS 243449).

ETYMOLOGY: refers to the province where the type specimen was found.

COLONIES effuse on natural substratum, brown, hairy. Mycelium partly superficial, partly immersed, composed of branched, septate, pale brown to brown, smooth-walled hyphae. CONIDIOPHORES distinct, single, cylindrical, solitary, unbranched, erect, straight or flexuous, 6–10-septate, smooth, dark brown to black, 110–155 µm long, 4–6.5 µm wide, with up to 10 (or sometimes more) percurrent extensions. CONIDIOGENOUS CELLS monoblastic, integrated, terminal, cylindrical, brown to dark brown, 1.5–2.5 µm wide at the apex. Conidial secession schizolytic. CONIDIA holoblastic, acrogenous, solitary, dry, obovoid to clavate, brown, slightly darker at the apex, smooth-walled, 1-euseptate, 9.5–15 µm long, 4–6.5 µm wide in the broadest part, base truncate and 1–2 µm wide, apex rounded.

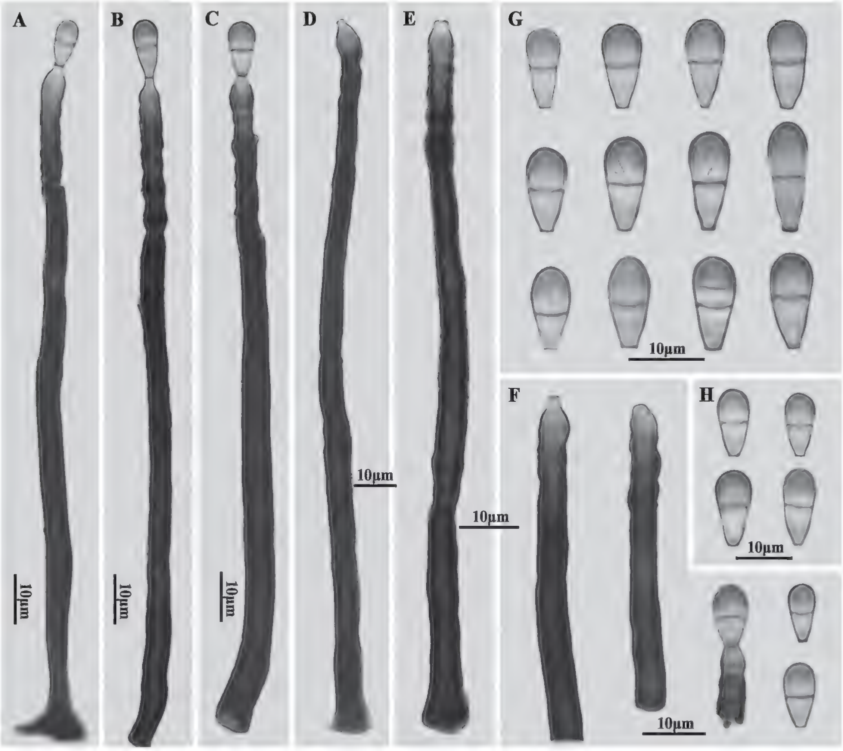

Fig. 2. *Repetophragma hainanense* (holotype). A–C. Conidiophores with terminal conidia with conidiophore apices showing conidiogenous cells and percurrent extensions. D–E. Conidiophores. F. Conidiogenous cells and conidia. G–H. Conidia.

Comments — Subramanian (1992) established *Repetophragma* Subram. with nine new combinations for species of *Sporidesmium* Link, citing *R. biseptatum* (M.B. Ellis) Subram. as the type species. *Repetophragma* was characterized by the production of acrogenous conidia that are solitary, obclavate, fusiform or rostrate, truncate at the base, rounded at the apex, euseptate, and seceding schizolytically from monoblastic integrated terminal percurrently extending conidiogenous cells. Thirty-three taxa have been published in *Repetophragma* (Subramanian 1992; McKenzie 1995; Mena-Portales et al. 2000; Wu & Zhuang 2005; Castañeda-Ruíz et al. 2006, 2011; Marincowitz et al. 2008; Silvera-Simón et al. 2009; Rambelli et al. 2011). Castañeda-Ruíz et al. (2011) provided a synoptic table of the morphological characters of all *Repetophragma* species (except *R. lignicola* (S. Hughes) Rambelli) and illustrated representative conidia. Assigning species to *Repetophragma* is primarily based on conidial morphology such as shape, size, septation, ornamentation, and presence or absence of a rostrum (Subramanian 1992, Wu & Zhuang 2005, Marincowitz et al. 2008, Silvera-Simón et al. 2009, Castañeda-Ruíz et al. 2011).

Repetophragma quadriloculare (Matsush.) R.F. Castañeda et al. is the species most similar to *R. hainanense* in conidial shape. However, *R. quadriloculare* differs by its much larger (16.5–21 × 8.5–13 µm), 3-septate, versicoloured conidia (Matsushima 1993, as *Endophragmiella quadrilocularis*).

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Literature cited

Baker WA, Morgan-Jones G. 2003. Notes on hyphomycetes XCI. *Pseudoacrodictys*, a novel genus for seven taxa formerly placed in *Acrodictys*. Mycotaxon 85: 371–391.

Baker WA, Partridge EC, Morgan-Jones G. 2002a. Notes on hyphomycetes LXXXV. *Junewangia*, a genus in which to classify four *Acrodictys* species and a new taxon. Mycotaxon 81: 293–319.

Baker WA, Partridge EC, Morgan-Jones G. 2002b. Notes on hyphomycetes LXXXVII. *Rhexoacrodictys*, a new segregate genus to accommodate four species previously classified in *Acrodictys*. Mycotaxon 82: 95–113.

Castañeda-Ruíz RF, Gusmão LFP, Heredia-Abarca G, Saikawa M. 2006. Some hyphomycetes from Brazil. Two new species of *Brachydesmiella*, two new combinations for *Repetophragma*, and new records. Mycotaxon 95: 261–270.

Castañeda-Ruíz RF, Heredia G, Arias RM, McKenzie EHC, Hyde KD, Stadler M, Saikawa M, Gené J, Guarro J, Iturriaga T, Minter DW, Crous PW. 2011. A new species and re-disposed taxa in *Repetophragma*. Mycosphere 2(3): 273–289.

Dai YC, Li HJ. 2010. Notes on *Hydnochaete* (*Hymenochaetales*) with a seta-less new species discovered in China. Mycotaxon 111: 481–487. http://dx.doi.org/10.5248/111.481

Dai YC, Cui BK, Yuan HS. 2009. *Trichaptum* (*Basidiomycota, Hymenochaetales*) from China with a description of three new species. Mycol. Progress 8: 281–287. http://dx.doi.org/10.1007/s11557-009-0598-0

Ellis MB. 1961. Dematiaceous hyphomycetes II. Mycol. Pap. 79: 1–23.

Ellis MB. 1971. Dematiaceous hyphomycetes. Commonwealth Mycological Institute, Kew, Surrey, England.

Ellis MB. 1976. More dematiaceous hyphomycetes. Commonwealth Mycological Institute, Kew, Surrey, England.

Gams W, Seifert KA, Morgan-Jones G. 2009. New and validated hyphomycete taxa to resolve nomenclatural and taxonomic issues. Mycotaxon 110: 89–108. http://dx.doi.org/10.5248/110.89

Ma J, Wang Y, O'Neill NR, Zhang XG. 2011. A revision of the genus *Lomaantha*, with the description of a new species. Mycologia 103(2): 407–410. http://dx.doi.org/10.3852/10-176

Ma J, Zhang YD, Ma LG, Ren SC, Castañeda-Ruíz RF, Zhang XG. 2012a. Three new species of *Solicorynespora* from Hainan, China. Mycol. Progress 11: 639–645. http://dx.doi.org/10.1007/s11557-011-0775-9

Ma LG, Ma J, Zhang YD, Zhang XG. 2012b. A new species of *Corynesporella* and two first records from China. Mycotaxon 119: 83–88. http://dx.doi.org/10.5248/119.83

Marincowitz S, Crous PW, Groenewald JZ, Wingfield MJ. 2008. Microfungi occurring on *Proteaceae* in the fynbos. CBS Biodiversity Ser. 7: 1–166.

Matsushima T. 1993. Matsushima mycological memoirs 7. Published by the author, Kobe, Japan.

McKenzie EHC. 1995. Dematiaceous hyphomycetes on *Pandanaceae*. 5. *Sporidesmium* sensu lato. Mycotaxon 56: 9–29.

Mena-Portales J, Delgado-Rodríguez G, Here dia-Abarca G. 2000. Nuevas combinaciones para especies de *Sporidesmium* S.L. (Hongos mitospóricos). Bol. Soc. Micol. Madrid 25: 265–269.

Rambelli A, Ciccarone C, Tempesta S, Raimondo FM. 2011. Dematiaceous hyphomycetes from *Quercus suber* litter. Fl. Medit. 21: 325-344.

Ren SC, Ma J, Ma LG, Zhang YD, Zhang XG. 2012. *Sativumoides* and *Cladosporiopsis*, two new genera of hyphomycetes from China. Mycol. Progress 11: 443–448. http://dx.doi.org/10.1007/s11557-011-0759-9

Silvera-Simón C, Mena-Portales J, Gené J, Cano J, Guarro J. 2009. *Repetophragma calongeii* [sic] sp. nov. and other interesting dematiaceous hyphomycetes from the North of Spain. Anales Jard. Bot. Madrid 66(S1): 33–39.

Subramanian CV. 1992. A reassessment of *Sporidesmium* (hyphomycetes) and some related taxa. Proc. Indian natn. Sci. Acad. B 58: 179–190.

Sutton BC. 1969. Forest microfungi. II. Additions to *Acrodictys*. Can. J. Bot. 47: 853–858. http://dx.doi.org/10.1139/b69-123

Whitton SR, McKenzie EHC, Hyde KD. 2000. Microfungi on the *Pandanaceae*: *Acrodictys*, with two new species. Fungal Divers. 4: 159–169.

Wu WP, Zhuang WY. 2005. *Sporidesmium*, *Endophragmiella* and related genera from China. Fungal Divers. Res. Ser. 15: 1–351.

Zhang K, Ma LG, Zhang XG. 2009. New species and records of *Shrungabeeja* from southern China. Mycologia 101(4): 573–578. http://dx.doi.org/10.3852/09-006

Zhang YD, Ma J, Ma LG, Zhang XG. 2012. Two new species of *Taeniolina* from southern China. Mycol. Progress 11: 71–74. http://dx.doi.org/10.1007/s11557-010-0729-7

Zhao GZ, Tian YH, Liu XZ. 2009. *Ramoacrodictys*, a new hyphomycete genus for one species previously accommodated in Acrodictys. Sydowia 61: 353–359.

Zhao GZ, Cao AX, Zhang TY, Liu XZ. 2011. *Acrodictys* (hyphomycetes) and related genera from China. Mycol. Progress 10: 67–83. http://dx.doi.org/10.1007/s11557-010-0677-2